DRUGGED DRIVING VIRTUAL CONFERENCE

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Seven Drug Categories

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THE DRUG EVALUATION AND CLASSIFICATION PROGRAM

DRE Definition of Drug

A simple, law enforcement oriented definition derived from the California Vehicle Code:

> **"Any substance that, when taken into the human body, can impair the ability of the person to operate a vehicle safely."**

There Are Seven Drug Categories

- The categories differ from one another in terms of how they impair driving ability and in terms of the kinds of impairment they cause
- Because the categories produce different types of impairment, they generate different signs and symptoms
- With training and practice, the DRE is able to recognize the different signs of drug influence and determine which category is causing the impairment observeed in a subject

Drug Categorization: Based on Patterns of Signs and Symptoms

With guidance from medicine, psychiatry, physiology, toxicology, and associated fields, a drug categorization system was developed that placed the primary drugs of abuse into seven categories. These categories are not based on shared chemical structures, nor on their legality, or on the user's subjective experience. Rather, this categorization system is based on the premise that each drug within a category produces a pattern of effects, known as signs and symptoms.

A "sign" is detectable by an observer. Signs include bloodshot eyes, horizontal gaze nystagmus, pulse rate, impaired coordination, etc. A "symptom," on the other hand, is by nature subjective. It is experienced by the individual, and may be reported to the observer. For example, a feeling of nausea is a symptom. Hallucinations are symptoms, although they may elicit behavioral signs. It is the pattern of effects, rather than a specific effect, that is unique to the category.

Systematic and Standardized Step-by-Step Procedure

The initial DREs used scientifically accepted medical techniques in order to detect the well-established effects of the drugs of abuse. What was new, however, was the development of a systematic and standardized step-by-step procedure that law enforcement could use to detect drug influence. This procedure began taking shape in the early 1980s.

A step-by-step checklist procedure is standard within law enforcement. Following a checklist ensures that nothing is left out, and aids in the presentation of evidence in court. Although the procedure was not nearly

as standardized as it is today, these early DREs were increasingly called upon by prosecutors to testify about the effects of drugs on driving. Los Angeles judges began to routinely recognize law enforcement as experts, which meant that they could render opinions, unlike the non-expert who could only relate facts.

Over a relatively short period of time, the rate of filing and subsequent conviction of drugged drivers equaled that of alcohol alone (approximately 95%).

DRE Drug Categorization: Based on Patterns of Signs and Symptoms – 7 drug categories

Drug Recognition Experts (DREs) classify the signs and symptoms of drug impairment into seven categories. This categorization system is based on the premise that each drug within a category produces a pattern of effects, known as signs and symptoms. Practically, this means that although there are numerous drugs within each of the seven categories, the overall pattern of effects within the category is the same. The effects can and do vary from drug to drug, primarily in terms of intensity and duration of action.

The effects of a drug depend not only upon the substance, but the subject (or suspect), as well as the setting. The "3-Ss" (substance, suspect, and setting) interact to produce the observable effects. Generally, the effects of a drug are dose-dependent, the higher the dose the greater the effect. The effects also depend on how the drug was administered, its purity, and the presence of other drugs. The suspect's tolerance to the substance, the user's expectations, coexisting illness and fatigue all interact to produce the observed impairment. Also, for many reasons, individuals vary in their response to the same drug. Rarely will an individual experience or display all the known signs and symptoms associated with a drug or drug category.

Overview of the Drug Categories

Seven Categories of Drugs:

- CNS Depressants
- CNS Stimulants
- Hallucinogens
- Dissociative Anesthetics
- Narcotic Analgesics
- Inhalants
- Cannabis

CNS Depressants

Central Nervous System (CNS) Depressants are drugs that slow down the operations of the central nervous system. In order for a drug to be classified as a Depressant according to the DEC/DRE program, it must depress the activity of a subject's brain and CNS.

Historically, alcohol has been the most used and abused psychoactive Depressant. The majority of the general public is familiar with the effects of alcohol through either personal experience and/or observing others impaired by alcohol.

This familiarity with the indicators of impairment associated with alcohol makes the Depressant category relatively straightforward.

The Depressant category initially affects a person's functions:

- Speech
- Coordination
- Mobility

At doses greater than therapeutic levels, impairment of the body's autonomic nervous system is affected.

The systems affected are:

- Heartbeat
- Body temperature
- Breathing

In addition to alcohol, the Depressant category also includes:

- Anti-anxiety drugs
- Anti-psychotics
- Anti-depressants
- Barbiturates
- Non-barbiturate
- Combinations

Subjects impaired by Depressants may look very much like subjects impaired by alcohol, but without the odor of alcohol on their breath.

Some familiar and often abused Depressants include:

- Valium
- Prozac
- Xanax
- Soma
- Alcohol

These are examples of just a few anti-anxiety tranquilizers, anti-depressants, and anti-psychotics legally prescribed for a variety of disorders.

There are also several illicit CNS Depressants that have gained national attention in the past several years.

- Rohypnol (Roofies)(Flunitrazepam)
- Gamma Hydroxy Butyrate (GHB)

These drugs have been implicated in an alarming number of sexual assaults and overdose deaths.

Rohypnol is most commonly found in pill form (1 or 2 mg).

Methods and Signs of Ingestion

Generally, CNS Depressants will be found in pill or liquid form.

The most common method for using Depressants is to take them orally.

Pills may be crushed and insufflated (snorted).

Some CNS Depressants, on very rare occasions, may be injected.

When CNS Depressants (other than alcohol) are taken orally, signs of ingestion may be difficult to detect.

- There are occasions when a subject may chew the tablets to create a quicker onset of effect. When this happens, traces of the tablet may be lodged in the teeth.
- Injection sites are easily identifiable by swelling of the area and ulcerations of the skin.
- The injection sites differ from those of other injectable drugs because liquid Depressants are generally thicker and take a larger gauge needle to inject the drug.

Effects of CNS Depressants

A person impaired by a CNS Depressant will look like a drunk, talk like a drunk, walk like a drunk, but they may not smell like a drunk.

Therapeutic doses (amounts typically prescribed by a physician) may not exhibit observable effects if they are ingested as prescribed.

Combinations of Depressants can be risky; they are commonly combined with alcohol.

This increases the effects of the Depressant and could magnify the effects and observable signs and symptoms.

General Indicators of Impairment

- A wide variety of emotional effects:
    - Euphoria
    - Depression
    - Laughing or crying for no apparent reason
- Reduced ability to divide attention
- Disoriented
- Sluggish
- Thick, slurred speech
- Drunk-like behavior
- Droopy eyes
- Relaxed inhibitions
- Uncoordinated
- Drowsiness
- Unsteady/Staggering walk
- CNS Depressants typically slow the Central Nervous System and may slow a subject's time estimation

Onset and Duration of Effects

There are four different classes of Depressants, which are classified based on how quickly they take effect and how long their effects last. They are:

Type	Action
Ultra Short	Very fast acting, very brief effects
Short	Fairly fast acting, effects last several hours
Intermediate	Relatively slow acting but prolonged effects
Long	Delayed but long-lasting effects

Other Factors

The intensity and level of impairment effects vary depending on:

- Drug and dosage amounts
- Age
- Weight
- Tolerance level
- Other variables may dictate the length of actual impairment

Type	Duration
Barbiturate	1 – 16 hours
Tranquilizers	4 – 8 hours
GHB	3 – 5 hours
Rohypnol	Peak 1 – 2 hours; Duration 8 – 12 hours

Conditions that may mimic impairment

- Extreme fatigue
- Very recent head injuries
- Diabetic reactions
- Hypotension (low blood pressure)
- Inner ear disorders
- Severe depression

CNS Stimulants

CNS Stimulants are drugs that speed up the operation of the central nervous system.

CNS Stimulants:

- Relieve fatigue
- Aid in weight reduction
- Reduce the need for sleep
- Increase energy and confidence levels

In general, stimulants bring about both a psychological and physical stimulation.

CNS Stimulants are commonly known as "uppers" and their effects are similar to the body's fight or flight responses.

As Stimulants "wear off," the individual can exhibit signs and symptoms similar to those associated with Depressants since some of the body's systems may experience a "crash."

The most widely abused CNS Stimulants are:

- Cocaine
- Amphetamines
- Methamphetamines

Cocaine is made from the leaves of the coca plant and is generally found as a white or off-white power.

Crack cocaine is made by mixing

- Baking soda
- Cocaine
- Water
- Then heating

It appears as small white or off-white chunks.

Amphetamines are usually found in pill form and are legally manufactured for medical use

Methamphetamine is an illicit drug and usually has the consistency of brown sugar, can be a variety of different colors, and is primarily produced illegally

Ephedrine and Pseudoephedrine are also classified as CNS Stimulants

Ephedrine is often advertised as diet supplements

- Diet Max
- Diet Now
- Diet Pep
- Mahuang
- Anti-insomnia aids (Mini-tabs, 357 Magnum, Ephedrine)
    - "Natural versions of illegal drugs" (Herbal Ecstasy and Herbal Bliss)
    - Pseudoephedrine can be found in a variety of over-the-counter antihistamines, decongestants and cold products, thus making it more accessible
        - Both are usually found in pill form and can be used in the production of methamphetamine
        - When taken in excess, they have the ability to impair

Ritalin, Adderall, and Dexedrine are also classified as CNS Stimulants. These medications allow an individual with attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) to focus their attention. These medications have recently become commonly abused by students and professionals who want to obtain a temporary increase in their ability to focus and process information

CNS Stimulants: Cocaine - Methods of Ingestion

There are many types of Stimulants and their form will dictate the method of ingestion.

- Powder cocaine is typically insufflated, but can be injected or smoked
- To be injected it must be converted to a liquid form
    - Users will heat the powder in distilled water
    - The chemicals will combine to form the injectable liquid
- Crack cocaine is smoked
    - Burns very hot, there may be signs of ingestion in the mouth

CNS Stimulants: Amphetamine — Methods of Ingestion

- Methamphetamines can be insufflated, smoked, injected, or taken orally
- Ephedrine, Pseudoephedrine, Ritalin, Adderall, and Dexedrine are primarily taken orally o Ritalin can also be crushed and insufflation

Signs of Ingestion

When a CNS Stimulant is taken orally, signs of ingestion may be very limited.

- When they are inhaled (as a powder) the septum may be perforated
- When they are inhaled (as a powder) the nasal tissue may be irritated or inflamed
- When they are smoked, the intense heat of the smoke may cause, burn marks on the fingers (where the pipe was held), and burn marks on the lips (where the pipe touched the mouth)
- Injection marks may be observed as a fresh puncture mark with blood oozing, bruising of the vein (caused by damage to the vein itself), or older marks, which may have dried blood covering the mark

Effects of CNS Stimulants

The main effect of most CNS Stimulants is Euphoria — an extremely pleasurable sensation, while the drug is psychoactive. However, the user may find an opposite effect as the drug wears off.

While the drug is psychoactive, the user may seem like their system is sped up or in fast forward, (But!), as the drug leaves the system (crashing), this person may appear as though they are under the influence of a CNS Depressant or Narcotic Analgesic.

General Indicators of Impairment

- Restlessness
- Body tremors
- Excited
- Euphoria
- Talkative
- Exaggerated reflexes
- Anxiety
- Grinding teeth (bruxism)
- Redness to nasal area
- Runny nose
- Increased alertness
- Dry mouth
- Irritability
- Eyelid and leg tremors
- Insomnia
- Rigid muscle tone

Because CNS Stimulants speed up the CNS, the user may exhibit fast time estimation.

Duration of Effects

Cocaine	5-10 minutes (smoked) 5-15 (injected) 30-90 (snorted)
Amphetamines	4-8 Hours
Methamphetamines	12 hours
Ritalin, Adderall, Dexedrine	Varies

Overdose Signs and Symptoms

Overdose signs and symptoms of a CNS Stimulant may include, but are not limited to:

- Increased heart rate
- Convulsions
- Increased body temperature
- Hallucinations

Conditions that may mimic impairment

Several conditions may mimic impairment by a CNS Stimulant. These may be, but are not limited to:

- Hyperactivity
- Nervousness
- Stress
- Fear

Hypertension (high blood pressure)

Hallucinogens

Hallucinogens are drugs that affect a person's:

- Perception
- Sensation
- Thinking
- Self-awareness
- Emotional state

This category causes hallucinations

The word "Hallucinogen" means something that causes hallucinations. A hallucination is a sensory experience of something that does not exist outside the mind.

The category is classified in this manner because one of the significant effects of these drugs is hallucinations.

- An example would be seeing something that does not exist.
- Another example is seeing sounds or hearing a color
    - This is called Synesthesia — or a transposition of senses

Identification of Hallucinogens

Some hallucinogenic drugs occur naturally.

- Peyote - is a species of cactus containing mescaline
- There are numerous mushrooms (psilocybin) capable of inducing hallucinations
- Jimson Weed and Morning Glory seeds can also be abused, often with tragic consequences

- There is also a toad (Bufo Alvarius), which releases a hallucinogenic secretion when threatened
    - The secretion is a defense mechanism for the toad

Common Hallucinogens

- Peyote (Mescaline)
- Psilocybin
    - Both are grown naturally

Hallucinogenic drugs are also synthetically manufactured.

Examples include:

- Lysergic Acid Diethylamide (LSD) liquid can be placed on blotter paper and sold as tabs, or it can be absorbed by sugar cubes or other pills
- 3, 4-Methylenedioxymethamphetamine (MDMA) or Ecstasy is an example of a synthetically produced Hallucinogen
    - MDMA can be found as a pill or as a powder
    - A pill press can be used to compress the powder into a pill, which may contain a variety of different shapes or figures
    - The use and abuse of Ecstasy has received wide spread attention because of its popularity in the "rave scene" and overdose deaths

Methods of Ingestion

Many Hallucinogens are taken orally.

LSD is absorbed directly either by placing it on the:

- Tongue
- Skin
- When a substance is absorbed through the skin it is called transdermal absorption

Extreme care should be taken when handling suspected LSD blotter paper. LSD can be absorbed through the skin causing unintentional intoxication. Gloves should be worn!

Substances that are dried and then eaten or brewed as a tea.

- Peyote
- Psilocybin Mushrooms
-

- Jimson Weed
- Morning Glory seeds

Ecstasy is usually taken orally.

Additionally, users can consume Hallucinogens by:

- Smoking
- Injecting
- Insufflation

Since most Hallucinogens are taken orally, detecting any signs of ingestion may be difficult.

Effects of Hallucinogens

The user can feel a wide variety of effects when using Hallucinogens.

The effects depend on the personality and expectations of the individual as well as the surroundings in which the drug is taken.

- The drug generally intensifies the mood of the user at the time of ingestion
- If the user is depressed the user could experience a deeper depression
- If the user is feeling pleasant the user could experience a heightened pleasure

- Hallucinogens can uncover emotional flaws in the user
- Therefore, the user may expect a pleasurable "trip," but end up instead with a bad "trip"

General Indicators of Impairment

Some of the physical, mental, and medical behaviors associated with Hallucinogens are:

- Hallucinations
- Paranoia
- Nausea
- Perspiration
- Dazed appearance
- Flashbacks
- Body tremors
- Lack of coordination
- Poor perception of time and distance

- Disorientation
- Memory Loss

- Synesthesia (transposition of the senses)
- Speech difficulty

Hallucinogens cause the user to have a poor perception of time and can result in difficulty estimating time.

Flashbacks are not believed to be caused by a residual quantity of drug in the user's body, but rather are vivid recollections of a previous hallucinogenic experience.

This can be similar to flashbacks associated with traumatic events.

Duration of Effects

LSD	10 to 12 hours (Peaks between 4-6 hours)
Ecstasy	1 to 3 hours
Psilocybin	2 to 3 hours
Peyote	Up to 12 hours (Peaks between 3-4 hours)

Overdose Signs and Symptoms

The primary overdose symptom for the Hallucinogen category is a long an intense "bad trip".

Medical conditions that may mimic impairment

Two conditions may mimic impairment by a Hallucinogen. These may be, but are not limited to:

- High fever
- Mental illnesses

Dissociative Anesthetics

Dissociative Anesthetics include drugs that inhibit pain by cutting off or disassociating the brain's perception of pain.

- PCP – Phencyclidine
- Analogs
- Ketamine
- Dextromethorphan

- Phencyclidine, along with its analogs, forms a distinct category all by themselves
- The chemical name for PCP is Phenyl Cyclohexyl Piperidine
- An analog of a drug is one with a similar chemical composition
- Analogs have slightly different chemical structures but produce the same effects

- Dissociative Anesthetics symptoms may be confused with individuals under the influence of Hallucinogens, Stimulants, and Depressants
- If a thorough assessment is not performed, the examiner may jump to an incorrect conclusion

Identification of Dissociative Anesthetics

- PCP was originally manufactured as an intravenous anesthetic
    - It was marketed under the trade name of Sernyl
- Although the drug proved to be a very effective anesthetic, it was discontinued for human use in 1967 because of very undesirable side effects
- Ketamine (Ketalar) is an analog of Dissociative Anesthetics and is still used in pediatric and animal surgery
- DXM is found in over-the counter anti-tussive medicines like *Robitussin, Coricidin Cough and Cold* and *Dimetapp*

Methods of Ingestion

Dissociative Anesthetics ingestion:

- Oral
- Transdermal
- Smoked
- Insufflation
- Eye Drops
- Injection

Most common form of ingestion is smoking in cigars, cigarettes, and marijuana

Officer safety is important. Numerous incidents have been documented where officers have been exposed to the side effects of the drug.

Effects of Dissociative Anesthetic

- The predominant effect of Dissociative Anesthetics is the ability to cut off the brain's perception of the rest of the body's senses (Dissociate)
    - This sense is so strong that many users feel their head is actually separated from their body
- Another, more dangerous, effect of PCP is the user's increased pain threshold (Anethetic)
    - The user is impervious to the same pain sensations that would typically render an impaired person incapacitated

- One should be extremely cautious when dealing with an individual impaired by PCP

General Indicators of Impairment

- Perspiration (PCP)
- Blank stare
- Cyclic behavior (PCP)
- Chemical odor (PCP)
- Incomplete verbal responses
- Skin warm to the touch (PCP)
- Slurred and repetitive speech
- Hallucinations
- Confusion
- Possibly violent
- Speech difficulty
- Disoriented
- Early angle of nystagmus (can be almost immediate)
- Non-communicative
- Sensory distortions

Subjects impaired by Dissociative Anesthetics typically have difficulty estimating time.

Duration of Effects

PCP	4-6 hours
Ketamine	30-45 minutes (injected) 45-60 minutes (Insufflation) 1-2 hours (orally)
DXM	3-6 hours

The duration of general effects may vary according to dose and whether the drug is injected, snorted, smoked, or taken orally.

There is often a prolonged recovery period following the dissipation of the general effects.

Overdose Signs and Symptoms

One of the primary overdose symptoms for the Dissociative Anesthetic drug category is a long and intense "trip."

Additional overdose signs and symptoms for DA drugs include:

- Deep coma lasting up to 12 hours
- Seizures and convulsions
- Respiratory depression
- Magnification of pre-existing cardiac conditions
- Possible psychosis

Narcotic Analgesics

- Drugs in the Narcotic Analgesics category relieve pain
- They induce euphoria, alter moods, and produce sedation
    - Narcotic Analgesics are also included in the opiate family and are legal prescription medications as well as illegal drugs
- This category is known for its physically addicting properties and severe withdrawal symptoms

Identification of Narcotic Analgesics

Heroin

The most familiar Narcotic Analgesic is heroin. Heroin is normally found in powder form. Depending on the purity, the color of heroin ranges from white to dark brown (color of tar).

- Heroin is the most commonly abused illicit Narcotic Analgesic
- Derived from Morphine in 1874
- Heroin was first thought to be a non-addictive substitute for Morphine
- It was approved for general use by the American Medical Association in 1906
- By the 1920's it was evident that heroin was much more addictive than Morphine
- Importing and manufacturing of heroin has been illegal in this country since 1925
- Heroin is a Schedule I drug, which means it has no legitimate medical uses in the United States

Other Narcotic Analgesics include:

- Hydrocodone
- Vicodin
- Lortab
- Tylenol 3 (with codeine)
- Buprenorphine

- Morphine
- Oxycontin

Typically, these are prescription drugs and found in pill form. The shape, size, or scoring can depend on the manufacturer or milligram amount. In most cases, Narcotic Analgesics are obtained in local pharmacies and sold locally. These drugs are inexpensive and frequently prescribed, but remain a controlled substance.

Methods of Ingestion

Methods of ingestion vary, depending on the drug used. They may be taken:

- Orally in pill form
- Injected as a liquid
- Smoked
- Insufflation
- Suppositories
- Transdermal

Most of the prescribed pain relievers are found in the pill form, which will be taken orally. If taken orally, signs of ingestion may be limited.

Heroin that is more pure may be inhaled, while heroin that is less pure is typically injected.

Effects of Narcotic Analgesics

- Narcotic Analgesics are usually very addictive
- This means the person must receive a dose of the drug at regular intervals or physical withdrawal may result
- Addicts who stop using may suffer physical withdrawal symptoms
- Narcotic Analgesics also enable the person to develop a tolerance to the drug (Each time the drug is taken, a larger dose is required to achieve the same feeling)

General Indicators of Impairment

- Droopy eyelids
- "On the nod" (Semiconscious type state of deep relaxation)
- Drowsiness
- Depressed reflexes
- Dry mouth
- Slow, low, raspy speech
- Euphoria
- Puncture marks
- Itching (face, arms or body

- Nausea
- Slowed breathing

Duration of Effects

The duration of Narcotic Analgesics can vary from one type to another.

Dosage amounts, age, weight, tolerance, and other variables may dictate the length of actual impairment.

Heroin	4-6 hours
Hydrocodone	6-8 hours
Dilaudid	5 hours
Vicodin	4-6 hours
Methadone	12-18 hours

Overdose Signs and Symptoms

Overdose signs and symptoms of a Narcotic Analgesic may include, but are not limited to:

- Slow and shallow breathing
- Clammy skin
- Coma
- Convulsions

Conditions that may mimic impairment

Several conditions may mimic impairment by a Narcotic Analgesic. These may be, but are not limited to:

- Fatigue
- Very recent head injuries
- Diabetic reactions
- Hypotension (low blood pressure)
- Severe depression

Inhalants

Inhalants are breathable chemicals that produce mind-altering results.

- Inhalants vary widely in terms of the chemicals involved and the specific effects they produce

- Inhalants are one of the most accessible and inexpensive substances of abuse due to their legitimate applications
- They are relatively inexpensive as well as readily available in the home, school, or work environment

The three major sub-categories of Inhalants:

- Volatile solvents
- Aerosols
- Anesthetic gases

Volatile solvents include a large number of readily available substance, none of which are intended by their manufactures to be used as drugs.

Some of these include:

- Gasoline
- Paint thinners
- Fingernail polish remover (contains Acetone)
- Dry-cleaning fluid
- Liquid Correction Fluid
- Paint (particularly oil or solvent based)
- Various glues (model airplane glue)

Aerosols are chemicals discharged from pressurized containers by propellants or compressed gas.

These are usually inhaled from a secondary source such as a:

- Soaked rag
- Paper bag
- Plastic bag

Some of the commonly abused aerosols include:

- Hair sprays
- Deodorants
- Vegetable frying pan lubricants
- Insecticides
- Glass Chillers

Anesthetic Gases are the least abused of the three subcategories of inhalants, mainly because of the expense and unavailability.

Anesthetic gases are drugs, which allow the user to disassociate pain and are generally used for medical procedures involving surgery.

These can be inhaled from the source directly.

Some of the anesthetic gases include:

- Ether
- Amyl nitrite
- Butyl nitrite
- Isobutyl nitrite
- Nitrous oxide
- (Whipped cream gas)

Methods of Ingestion

Spray paint and other Inhalants:

- Can be sprayed into an empty soda can and inhaled through the opening in the top
- Sprayed into a balloon and inhaled
- Soaked in a cloth (scrunchies/socks) and placed on the nose/mouth and inhaled

Signs of Ingestion

Persons abusing Inhalants will frequently have the abused substance on their:

- Hands
- Face
- Mouth

Effects of Inhalants

The effects of Inhalants will vary widely depending on the substance inhaled. Typically, the

Inhalant abuser will generally appear to be intoxicated on alcohol.

Inhalant abusers can be detected and distinguished from other drug abusers because they will usually carry a chemical odor of the inhaled substance about their breath and person.

General Indicators of Impairment

- Confusion
- Flushed face
- Intense headaches
- Bloodshot, watery eyes

- Lack of muscle control
- Odor of inhaled substance
- Non-communicative
- Disorientation
- Slow, thick slurred speech
- Possible nausea
- Residue of substance around mouth and nose

Because inhalants typically cause the user to be confused and disoriented, a subject impaired by an inhalant will have difficulty estimating time.

Duration of Effects

Volatile Solvents	6-8 hours
Anesthetic Gases	Very Short
Nitrous Oxide	< 5 Minutes
Amyl Nitrite and Butyl Nitrite	Few seconds to 20 minutes

Overdose Signs and Symptoms

The primary overdose sign for an Inhalant is coma or "sudden sniffing death." This is where the individual stops breathing from inhaling a substance. This may occur during the first experience with an Inhalant.

Conditions that may mimic impairment

Two conditions may mimic impairment by an Inhalant. These may be, but are not limited to:

- Severe head injuries
- Inner ear disorders/Equilibrium

Cannabis

- Cannabis is a category of drugs derived primarily from various species of plants, such as Cannabis Sativa and Cannabis Indica
    - Indica plants grow short and wide, while Sativa plants grow tall and thin

- The drugs in this category are the most widely abused illicit drugs
    - They can be extremely impairing even though they are often believed to be fairly benign
- The primary psychoactive ingredient in Cannabis is Delta-9 Tetrahydrocannabinol (THC)
    - THC is found primarily in the leaves and flower of the marijuana plant
    - Different varieties of Cannabis contain various concentrations of THC
    - Marijuana is usually found as green leaves

The **Cannabis** category includes:

- Marijuana
- Hashish
- Hash oil
- Synthetic drugs, such as Dronabinol and Marinol
- Other forms of Cannabis

Marijuana is the most common and well known of the drugs in this category, but there are other forms as well.

Medicinal use

Marinol, a synthetic form of Cannabis, has a legitimate medicinal use as an anti-vomiting agent, commonly associated with cancer chemotherapy.

Other forms are used for glaucoma patients or as appetite enhancer for anorexia disorders

Many state allow various uses of medical marijuana

THC Concentrations

The effects of Cannabis depend on the strength of the THC in the dose consumed.

- THC concentrations decades ago, peaked at relatively low levels (3-6 %)
- Current levels are being reported at more than 30%
    - The increase in THC levels is due to hybridization and better cultivation techniques used by producers
    - There are several chemicals in marijuana smoke
    - Some of these chemicals are water soluble (meaning they combine with the water) and some are not (THC)

Synthetic Cannabinoid Products

Synthetic cannabinoid products typically include:

- olive colored herbs
- combination of herbs
- plant materials
    - Enhanced with a delta-9-tetrahydrocannabinol (THC) synthetic analog
    - When smoked, synthetic cannabinoid products can produce stimulant and/or hallucinogenic effects

Synthetic Cannabinoid Products Effects

They have many adverse effects that include:

- Panic attacks
- Agitation
- Tachycardia (range of 110 to 150 BPM)
- Elevated blood pressure
- Anxiety
- Pallor
- Numbness and tingling

User report effects lasting between 30 minutes and 2 hours.

Common brand names for synthetic cannabinoids include: K2, Spice, Spice Gold, Spice Diamond, Yucatan Fire, Solar Flare, K2 Summit, Genie, PEP Spice, and Fire n Ice, to name a few.

Sources indicate, **Waxy marijuana or wax marijuana** is the purest form of cannabis. It contains anywhere from 82-99% THC making it several times more potent than a marijuana bud on a cannabis plant which usually contains 5-28% THC. One hit of wax is supposedly equal to 1-2 full cannabis joints and is reported as being more clear and longer lasting than average marijuana. Wax marijuana is also a medical marijuana product. Typical wax marijuana is golden in color and crumbly; though texture may vary on type.

Methods and Signs of Ingestions

Marijuana is usually rolled into cigarettes and smoked.

- Since these cigarettes lack a filter, small bits and pieces of marijuana debris may be found stuck between the teeth of the user
- Burn marks may be found on the thumb and index finger

The user may also use a "water pipe" or "bong" to smoke marijuana.

- By passing the marijuana through the water, the smoke more pure and cooler.

Effects of Cannabis

People under the influence of Cannabis may not to be able to:

- Pay attention
- May have a very brief attention span

The subjective effects can vary considerably, but they will exhibit divided attention impairment.

The consequences of this in the classroom may be obvious, but the consequences when driving can be fatal.

Studies

- According to a study by the British Medical Journal (2005) even small amounts of marijuana can double the chances of a driver's involvement in a motor vehicle crash and larger doses can more than triple the risk
    - According to the Columbia University School of Public Health, the risk of an automobile crash is almost 2.7 times higher among marijuana users than nonusers
    - The more marijuana smoked in terms of frequency and potency, the greater likelihood of a crash
    - In a study published by the National Institute of Health Public Access (2009) showed that the effects of marijuana vary more between the individual than the effects of alcohol

The study also revealed that laboratory tests and driving studies show, "Cannabis may acutely impair several driving-related skills in a dose-related fashion but the effects between individuals varies more than they do with alcohol because of tolerance, the difference in smoking techniques and different absorption of THC."

General Indicators of Impairment

- Euphoria
- Bloodshot eyes
- Odor of marijuana
- Marijuana debris in the mouth
- Body tremors
- Increased appetite
- Relaxed inhibitions
- Disoriented
- Possible paranoia
- Altered time and distance perception

- Eyelid tremors
- Sedation

Cannabis affects the user's ability to estimate time and distance

Onset and Duration

Effects from **smoking Cannabis** are felt within minutes and reach their peak in 10-30 minutes. Typical marijuana smokers experience a high that lasts approximately 2 hours. Most behavioral and physiological effects return to baseline within 3-5 hours after drug use, although some residual effects in specific behaviors can last up to 24 hours.

Source: Drugs and Human Fact Sheets, April 2014, DOT HS 809 725

- A 1985 Stanford University study showed that pilots had difficulty in holding patterns and in lining up with runways for up to 24 hours after using Marijuana

Depending on the amount smoked and on the concentration of THC in the Marijuana, the person will continue to feel and exhibit the effects for 2-3 hours.

- In 1990, a second Stanford University study showed:
  - Marijuana impaired performance at .25, 4, 8, and 24 hours after smoking
  - While 7 of the 9 pilots showed some degree of impairment at 24 hours after smoking Cannabis, only one reported any awareness of the drug's effects
- **Dronabinol** has an onset of 30 minutes to 1 hour with peak effects occurring between 2 and 4 hours
- It can stimulate appetite for up to 24 hours
- (Depends on substance consumed)
- The user may be impaired long after the euphoric feelings have ceased

Overdose Signs and Symptoms

Overdose signs and symptoms of Cannabis may include, but are not limited to:

- Paranoia
- Fatigue

Cannabis impairment will not be confused with any other medical condition as noted in the other drug categories.

However, a person diagnosed with an attention deficit disorder may mimic a Cannabis user’s inability or unwillingness to pay attention.